

Claims

What is claimed is:

1. A pneumatic apparatus for actuating a secondary device (such as a high-pressure valve) useful in applications, such as opening the valve of an air-powered projectile-launching device, comprising:

A housing with one or more gas reservoirs situated in a manner that will perform work when charged with gas pressure;

A spring to bias the ram position in one direction;

One or more air inputs port in the air reservoir;

A quick evacuation valve (QEV) style valve to direct air to flow into the air reservoir and then out again through the same path without pressure resistance; and

A means by which to return the ram to the start position using external air pressure.

2. A pneumatically driven ram device and application means, useful in equipment such as air-powered guns, that performs the work of opening a normally closed valve and returning the device to the beginning of its cycle relieving pressure from the valve, allowing it to resume its normally shut position, comprising:

A valve designed to exhaust a small portion of gas flow back at the ram forcing the hammer of the ram back to its start or cocked position;

A hammer, designed to open the valve with momentum when the ram is charged with compressed gas by moving forward rapidly, that includes a seal to allow it to be repelled by the exhausted gas from the valve;

A gas-containing reservoir positioned rearward of said ram with one

movable membrane arranged in such a manner that when the ram is in the normal cocked or start position the reservoir has no gas pressure inside it and the volume of said reservoir is relatively small, and when the ram is charged by allowing high pressure gas into said reservoir the reservoir expands to accommodate said gas pushing a ram armature that is connected to the hammer at the other end forward;

A U-shaped seal applied in a manner around the movable membrane of said reservoir as to provide a seal when the membrane moves forward, but relieves the seal when moving backwards to the start position;

A quickly evacuating valve assembly arranged in communication with said reservoir in such a manner as to create a sealed path for the high pressure gas flow into the reservoir, but allow the gas in the reservoir to escape rapidly through the same valve but out a different vent once the pressure in the air line is released;